

Gender-based analysis of math self- efficacy, career influencers and STEM career knowledge amongst students in Atlantic Canada*

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Summary Despite efforts to increase the numbers, less than 25% of the STEM workforce are women. The reasons for this are varied but starts with the interests and influencers of our youth.

1. Relevance

Educators have long been concerned that fewer women than men pursue STEM (Science, Technology, Engineering, Math) programs at the post-secondary level. To increase Canadian innovation, our STEM workforce needs to be more diverse and we need to understand the reasons for these statistics.

2. Aims & Objectives

The goals of this study, which focused on junior high school students, were to understand how students felt towards STEM, their knowledge of STEM careers, and their likelihood of pursuing a STEM career down the road. Our primary focus was to uncover the differences and similarities between male and female students.

3. Methods

Grade 7 and 9 students (boys and girls) within public schools in all four Atlantic Provinces completed an online survey during school hours, supervised by teachers. In addition, this survey was completed by female students who attended a week-long summer science camp. This study had two comparisons. First, boys and girls from the Nova Scotia (NS) sample (n=383), were compared. The second was a specialized profile group consisting of Grade 7 girls in the NS cohort, and NS Science Camp girls entering or exiting Grade 7 (n=292), all of whom said that they got good marks in Math.

4. Results

All students reported good grades in math but girls reported feeling more tense when doing math problems when compared to boys in the general cohort. In the specialized sample, girls did not report feeling tense. Students reported various influencers about their future. Significantly more girls reported passions/future, helping others, and teachers/grades as influencers. No difference between gender was found in likelihood to pursue a STEM career in the general cohort. Summer camp girls, however, were more likely to pursue a STEM career (47% to 22%) than general cohort of girls. Significantly more girls than boys (49% vs 36%) reported having women working in their family as engineers, scientists, or within the medical fields. Also, significantly more girls who attended science camp reported having women working in their family as engineers, scientists, or within the medical field families (74% to 53%) than girls in the general cohort.

5. Conclusions

The data from this study shows that girls continue to feel more anxious when it comes to solving math problems than boys, yet still get good marks. This suggests that this anxiety is still a factor in girls opting out of taking higher-level math courses in high school (which in turns limits entry into STEM undergraduate degree's). The summer camp cohort of girls report that they are more likely than the general cohort of students to consider a STEM career is promising and points to the fact that exposing girls to hands-on science activities and STEM role models does have a positive impact.

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